

5 CLAIMS

We claim as our invention:

1. A method for scheduling periodic events in a computing system, comprising the steps of:

storing a schedule list of time entries for a plurality of periodic events,

10 wherein one or more of said periodic events is to occur at one or more times represented by said list of time entries;

receiving a registration request for a new periodic event from a process, wherein said registration request includes period time data for said new periodic event;

15 comparing said period time data with said schedule list to determine whether said new periodic event can occur at one or more of said times represented by said schedule list of time entries; and

modifying said schedule list of time entries responsive to said step of comparing.

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2. The method of claim 1, wherein said period time data includes a plurality of time values.

25 3. The method of claim 2, wherein one of said plurality of time values in said period time data indicates an open end of a time range.

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- 5           4.       The method of claim 1, wherein said step of modifying includes the step of  
              storing an indication that said new periodic event is to occur at one or more of said one or  
              more times represented by said schedule list of time entries.
  
- 5.       The method of claim 1, wherein said step of modifying includes the step of  
10           adding one or more new time entries to said schedule list of time entries.
  
- 6.       The method of claim 5, wherein said step of modifying further includes the step  
              of extending said schedule list of time entries such that a last entry in said schedule list is  
              a common multiple of a plurality of periods of said plurality of periodic events.  
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- 7.       A computer-readable medium having computer-executable instructions for  
              performing the steps recited in claim 1.
  
- 8.       A computer-readable medium having computer-readable instructions for  
20           performing steps including:  
                      storing, in a memory, a schedule list having a plurality of time entries  
                      indicating times at which a plurality of critical processes are to be checked to  
                      determine whether said critical processes remain active, wherein said time entries  
                      in said schedule list are synchronized;  
25                 using said schedule list to periodically verify that said critical processes  
                      remain active; and

5 taking corrective action when one of said critical processes no longer  
remains active.

9. The computer-readable medium of claim 8, wherein said computer-readable  
instructions for performing said step of using said schedule list are for further performing  
10 the steps of:

sending a first signal to a first critical process at a first time in said  
schedule list;

waiting for a second time in said schedule list, wherein said second time  
corresponds to said first critical process;

15 at said second time, determining whether a response to said first signal  
was received from said first critical process;

resending said first signal to said first critical process if said response was  
received; and

20 taking corrective action if said response was not received from said first  
critical process.

10. The computer-readable medium of claim 9, wherein said computer-readable  
instructions for performing said step of taking corrective action are for further performing  
the step of restarting said first critical process.

25 11. The computer-readable medium of claim 8, wherein said schedule list further  
comprises information identifying one or more of said plurality of critical processes.

12. The computer-readable medium of claim 8, wherein a last time entry in said schedule list includes a time value that is a common multiple of a plurality of periods associated with said plurality of critical processes.

10 13. The computer-readable medium of claim 8, wherein said computer-readable medium is enclosed within a portable computing device.

14. The computer-readable medium of claim 13, wherein said portable computing device is a cellular telephone or a pager.

15 15. A method for carrying out periodic events, comprising the steps of:

storing a schedule list of time entries corresponding to a plurality of periodic events;

receiving a request to schedule a new periodic event, wherein said request includes a minimum time parameter and a maximum time parameter;

20 assigning said new periodic event to a first entry in said schedule list if both said minimum time parameter and said maximum time parameter are wildcard values;

assigning said new periodic event to a first entry in said schedule list if

25 said minimum time parameter is a wildcard value, and said maximum time parameter is greater than or equal to a time value in said first entry in said schedule list; and

5                    assigning said new periodic event to a last entry in said schedule list if said  
maximum time parameter is a wildcard value, and said minimum time parameter  
is less than or equal to a time value of said last entry.

16.    The method of claim 15, further comprising the steps of:

10                    adding a new entry to said schedule list if said minimum time parameter is  
a wildcard value and said maximum time parameter is less than a time value of  
said first entry in said schedule list; and

                     extending said schedule list until a last entry in said list is a common  
multiple of a plurality of periods for said plurality of periodic events.

15                    17.    The method of claim 15, further comprising the steps of:

                     adding a new entry to said schedule list if said maximum time value is a  
wildcard value and said minimum time value is greater than a time value of a last  
entry in said schedule list, wherein said new entry includes a time value that is an  
20                    integer multiple of a time value in said last entry in said schedule list; and

                     extending said schedule list until a last entry in said list is a common  
multiple of a plurality of periods for said plurality of periodic events.

18.    A computer-readable medium having computer-executable instructions for  
25                    performing the steps recited in claim 15.

19.    A computing device, comprising:

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a processor; and

a memory storing a plurality of computer-executable instructions for a plurality of processes to be executed on said processor, and a schedule list having entries of time information and event identification information, wherein said schedule list is used by a first one of said plurality of processes to monitor one or more of said plurality of processes.

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20. The device of claim 19, wherein said event identification information identifies a plurality of periodic events, and said schedule list includes an entry having time information that is a common multiple of time periods for each of said plurality of periodic events.

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21. The device of claim 20, wherein said first one of said processes is a critical process monitor, and said one or more of said plurality of processes includes a critical process.

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22. The device of claim 19, wherein said memory is a single memory.

23. The device of claim 19, wherein said processor is a single processor.